spring attack that does the whole mischief to the farmer who knows nothing concerning the autumn brood.

I have, moreover, been led to believe that an enormous destruction of the "flax seed" occurs during the winter, especially in the roots, which are entirely killed by the fly. I have often dug up and examined such roots during the winter and have many times found the pupæ nearly all dead and rotten. If further examination should confirm this observation we have an efficient cause checking to a great extent the excessive multiplication of this pest.

ZOÖLOGY.

NOTES ON AMERICAN MEDUSÆ.—No group of marine animals presents a more fascinating field for the discovery of unknown facts than the Medusæ. As in the progress of science isolated observations may come to have a value greatly beyond their apparent significance, I have thought it best to publish a series of disconnected notes on these animals. Many of them have been in MS. for some time, and I have preserved them in this form with the belief that new opportunities might give me such additional observations as would enhance their value. Many notes, and some of the most important, have already become antiquated through the studies of others. The remainder are presented below as a contribution to the study of the surface fauna of the ocean, to which naturalists are at present turning their attention with renewed activity.

Dinematella cavosa Fewkes.—The youngest larva of this genus known to me is represented for the first time in the accompanying cut (Fig. 1). The most important difference between it and the adult is the very small size of the apical projection of the bell. This portion of the nectocalyx barely rises above the surface in the larva, whereas in the adult it often projects to a height equal to the diameter of the bell itself. In this projection, however, even in this young condition, the curious cavity or brood sac (*c*) can be

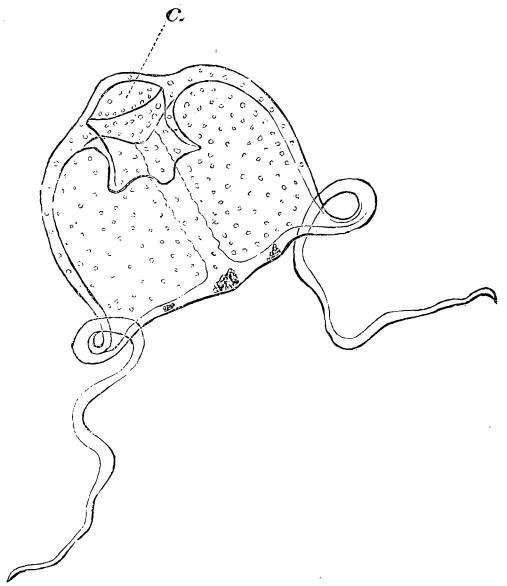

FIG. 1.—*Dinematella cavosa.*

easily seen through the bell walls. The remaining parts of the Medusa are the same as those of a larva a little older which is figured in the Bulletin of the Museum of Comparative Zoölogy, Vol. VIII, No. 8. Observations are needed to show what the function of the cavity (*c*) is in the adult.

Gemmaria gemmosa McCrady.—In the youngest larva of *Gemmaria gemmosa*, which has formerly been described, two well-developed tentacles arising from opposite ends of a diameter connecting the bell margin are represented.[1] In July, last summer, I took at Newport, R. I., a still younger Gemmaria than these, which has only one tentacle and the rudiment simply of a second diametrically opposite it, as shown in the figure.

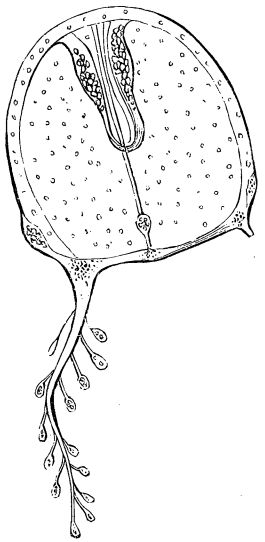

FIG. 2.—*G. gemmosa* with one tentacle.

It will thus be seen that this stage of Gemmaria, as far as the unpaired tentacle goes, resembles Hybocodon and other unitentaculated genera. It is, however, possible that this specimen was an imperfect one, and that the other tentacle had been destroyed, or possibly that its growth had been abnormally retarded.

Oceania languida A. Ag. — Every student of the group of Medusæ is familiar with the fact that abnormalities are of frequent occurrence. Numerous instances might be cited, but a few examples will suffice. We find variations in the number of tentacles, otocysts, stomachs and other structures. Among the Discophora, in Cassiopea, as elsewhere[2] described, an abnormal specimen has a double ocellus on a single otocyst, and a doubled otocyst on a single peduncle. Among the free gonophores of Hydroids variations in the course of radial tubes are very numerous, but generally consist in multiplication of parts or the addition of one or more to the typical number. It seldom happens that the number of tubes is less than the normal number four, which is a constant characteristic of many if not all the true Oceanidæ.

The accompanying figure represents an *O. languida* from Newport with a perfectly formed bell but only three radial tubes, two of which (1, 2) have normal ovaries (*o*) and one (3) ends blindly in the bell walls, half way between the center of the Medusa

[1] A. Agassiz, North American Acalephæ, p. 184. McCrady, Gymophthalmata of Charleston Harbor, pp. 48–50.

[2] Bull. Mus. Comp. Zoöl., Vol. VII, No. 7.

and the bell margin. The Oceania seemed not in the least incommoded by the loss of the fourth and the reduction in size of a third radial tube, but moved with the same ease as if both were present and well developed. There is this inexplicable relationship in the position of the two perfect tubes which remain. In normal specimens of Oceania the angle 1 P 2 between adjacent radial tubes is a right angle; here, however, it is at least 120°. The same is true of the angles 2 P 3 and 1 P 3. From which side of the base of the proboscis, in relation to those already present, ought we to suppose the missing tube, if it had existed, to arise? Shall it be in the angle 1 P 2 opposite the aborted tube 3, or in the remaining angles 1 P 3, and 2 P 3? To throw light on this question let us turn to the appendages of the bell margin, where we would naturally expect concomitant variations. Between *a* and *b* on the bell margin, corresponding to the angle *a* P *b*, there are seven otocysts and four well developed tentacles. Between sections *a* and *b* of the margin, passing through *c*, there are fourteen fully-formed otocysts and eight tentacles, or just twice as many as on the first mentioned portion of the rim. The bell margin shares with the remainder of the umbrella the trifid character indicated by the radial tubes. It seems to be, therefore, that the bell margin confirms a theory, which the radial tubes suggest, that only three sectors exist in the umbrella, while the fourth is unrepresented on the bell margin as in the body of the umbrella.

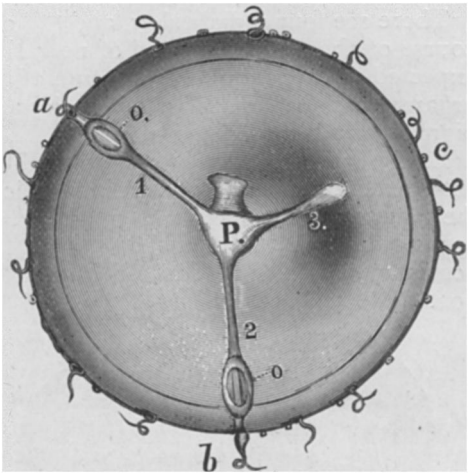

FIG. 3.—*Oceania languida*, aboral view.

Mnestra parasita.—Among the hydroid Medusæ we find very few examples of parasitic gonophores. One of the most interesting of these is the genus Mnestra, found parasitic on the abnormal mollusk, Phyllirhoë. The affinities of this Medusa have never been satisfactorily made out, and nothing is yet known of its development.

The existence of lateral appendages to the tentacles and the absence of otocysts, leads me to place it somewhere near Zanclea and Gemmaria. The tentacles (Fig, 4 *t*) are very stunted (Fig. 6), and from their tips there arises a cluster of lateral appen-

dages, each consisting of a number of thread cells enclosed in a capsule and mounted on a small peduncle.

There are four radial tubes, and the ovaries are found along the course of these tubes instead of near the proboscis as might be expected in a gonophore destitute of marginal otocysts. Certain organs which are identified as ovaries and lie on radial tubes, are pigmented a black color.

Each of the four radial tubes has, midway on its course, a slight enlargement forming a pocket into which it is not impossible that the young are dropped, and may be carried while the larva is passing through its younger stages. There is a very small proboscis, by which the Medusa is in part fastened to the body of its host (Fig. 4).

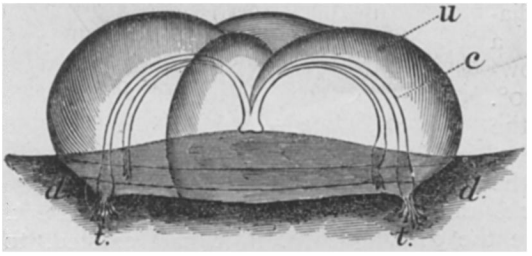

Fig. 4.

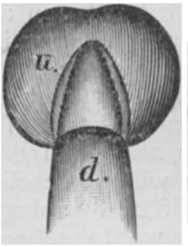

Fig. 5.

Fig. 6.

FIG. 4.—*Mnestra parasita* attached to the edge of the body of Phyllirhoë; *c*, radial tubes; *d*, body of Phyllirhoë; *u*, umbrella. FIG. 5.—Section of Phyllirhoë and Mnestra body, showing how the umbrella of the latter embraces the throat of the former. FIG. 6.—Tentacle of Mnestra with side branches.

The specimens from which these observations were made are alcoholic and differ somewhat from the Mediterranean species in size and form. They have, however, the same parasitic life upon Phyllirhoë, and the variations mentioned are probably due to influence of the alcohol in which they are preserved.

Locality, Florida reefs.

Abyla pentagona Forskal.—One of the few genera of Siphonophora which has not yet been recorded from American waters is the well-known *Abyla pentagona* of the Mediterranean. A single specimen, undoubtedly of this genus and probably of the same species as the above, was found in a bottle of gelatinous animals of all kinds collected by a friend on the western coast of Florida, near Tampa bay.

Gleba hippopus Forskal.—The U. S. Fish Commission, as I have elsewhere[1] mentioned, found a single specimen of this Siphonophore off Nantucket, and a second was collected by the *Blake* in the Gulf Stream in 1880. I have to record a third specimen taken from the Gulf of Mexico, near Tampa bay, the first time, as far as I know, that the genus has been mentioned from this locality or the Gulf of Mexico.—*J. Walter Fewkes.*

[1] Bull. Mus. Comp. Zoöl., Vol. IX, No. 7, p. 275, Note. No. 8, figs. 31, 32, 33.

LIFE IN THE NAPLES AQUARIA.—H. Eisig placed in a basin of water an Octopus, a Gobius and a Pagurus, with an Actinian on its shell; the Octopus attacked the crab, which immediately withdrew into its shell, while the attacker instantly retreated, for the stinging organs of the Actinia had been too much for it. The same thing happened with the goby. A Pagurus without a shell was afterwards placed near the Octopus, and the latter examined it very carefully before it dared to seize it. At the same time it is to be observed that the Actinian gets much assistance from its commensal, thanks to the locomotive and olfactory powers of the latter.

Observations on thermal conditions showed that many fishes and other marine forms were but little affected by alterations in temperature; while a study of the modes of nesting of marine forms shows that much depends on what region of the sea the subjects naturally inhabit, and considerable differences are to be observed between pelagic and more deeply dwelling fishes and cephalopods.—*Journ. Roy. Microscopical Society, Aug., 1883.*

NEW HUMAN CESTODE—LIGULA MANSONI.—Dr. S. S. Cobbold describes a Cestode, twelve of which were found in a Chinese, lying in the subperitoneal fascia, about the iliac fossæ, and behind the kidneys, a single one being found lying free in the right pleural cavity. They were from 12 in. to 14 in. long, 1-8th in. broad and 1-64th in. thick. The Cestode comes nearer to *Ligula simplicissima*, frequently found in the abdominal cavity of fresh-water fishes, than to any other species, and without asserting positively that it may not be a variety of that form, the author thinks, from the unique character of its habitat, associated with certain differences of form, that it may properly be regarded as the immature representative of a totally distinct species.—*Journ. R. Micr. Soc.*

HYDRO-MEDUSA WITHOUT DIGESTIVE ORGANS.—Dr. Lendenfeld describes a new sub-family of hydroids, Eucopellinæ, in which the medusa has no digestive organs, and lives only a short time after its escape from the gonophore. Only one species, *Eucopella campanularia*, is known, and this is found in Australia. The larva is a campanularian whose hydranths are carried upon almost unbranched stems, which spring from a creeping root. The medusa has a veil, well-developed marginal sense-organs, radial and circular chymiferous tubes, and large reproductive organs, but it has no mouth, stomach, or tentacles. It discharges its reproductive elements within twenty-four hours after its liberation, and it lives only about thirty-six hours.—*Journ. Roy. Microscopical Society, Aug., 1883.*

BLUE COLORING MATTER OF RHIZOSTOMA.—R. Blanchard has a note on his own investigations into the blue coloring matter of *Rhizostoma cuvieri*, in which he points out the differences between his results and those lately obtained by Kleinenberg on the same

body; one which the latter author distinguishes as cyanein. The French observer finds that the tissues give up the color after death, and that the blue color of the aqueous solution disappears when heat of from 40° to 45° is applied, and gives place to a well-marked rosy hue, which again disappears on cooling. Spectroscopic examination reveals the presence of three absorption-bands, one in the red, one in the yellow, and one in the green region; the second of these corresponds almost exactly in position to the sodium-band. If the aqueous solution is treated with ammonia the blue color is immediately precipitated under the form of small blue flakes which may be collected on the filter-paper and analyzed. The author hopes that further investigations will reveal the cause of the differences which obtain between his results and those of Kleinenberg.—*Journ. Roy. Microscopical Society, Aug., 1883.*

An Oyster on a Crab.—A fisherman has sent me a small crab with an oyster somewhat larger than itself ensconsed on the right side of its carapace. The crab is *Cancer irroratus* Say, and is a young female which has but just attained puberty. The shield is two inches across, and one-and-three-fourths inches from front to back. The caudal flap is distended with eggs. The oyster is two-and-half inches in length, and two inches wide, and is firmly attached to the right extremity of the carapace. It is a wonder how the prospective little mother could manage her charge so far, and at the same time carry such a lobsided encumbrance; the crab is hardly more than one-fourth fully grown. The oyster, it is pretty certain, is about four months old.—*S. Lockwood.*

Moulting of Limulus.—I was much interested in Mr. B. F. Koon's article in the December Naturalist, on Sexual Characters of Limulus. But it caused surprise to see a discussion of points which I thought were settled in my article on the Horse-Foot Crab, in Am. Naturalist, Vol. iv, 1871, p. 257. The points there made are that the male Limulus does not assume the large claws or claspers until puberty, which I expressed the belief did not come until the age of three or four years. Hence the exuviæ of the young crabs show no difference of the forward claws. I also observed the probable numerical equality of the sexes. As to the exuviation of large crabs, I gave instances and measurement of increase. Where these crabs are common the shedding of the adult is not a rare sight.

As to finding undoubted exuviæ of the adult males brought up by the sea, it is uncommon to find such of either sex. The young have very light shells, and their exuviæ are easily brought shoreward by the wash, and often make vast wind-rows. Whereas the adult exuviæ are heavy, and are seldom found brought up. I think, too, that the young crabs prefer shoaler waters than

do the adults. I have shown that at considerable depths, even in winter, the large adult has been known to shed. Had Mr. Koon consulted the article referred to he could not have written, "We are led to believe that large Limuli rarely, possibly never, shed, because among all those examined, there were no large exuviæ." On seeing the act of exuviation by a large Limulus, an officer of the United States Army, at the fort at Sandy Hook, N. J., exclaimed: "The animal is spewing itself out at its mouth!"—*S. Lockwood.*

SOGRAFF'S EMBRYOLOGY OF THE CHILOPOD MYRIOPODS.—We have received from the author an elaborate memoir, unfortunately in the Russian language, and with no complete abstract in French or German, on the embryology of two species of Geophilus (*G. ferrugineus* and *proximus*). It is a large quarto brochure of 77 pages, dated Moscow, 1883, with the illustrations, printed sometimes in three colors, inserted in the text; as the drawings of the sections and complete embryo are on a large scale, one can form some idea of the nature and high value of the author's work. The bibliographical references are full and satisfactory. Beginning with careful comparative descriptions of the two species of Geophilus, whose development is described, the internal reproductive organs are figured and elaborately described. In a partial abstract which appeared in the *Zoologischer Anzeiger* for Nov. 6, 1882, Sograff states that the best material for his researches were the above-named species of Geophilus. The Lithobii present much more difficult material for study, as their eggs are scattered in the earth or in the humus of decaying vegetation, and are like small particles of sand, from which they often can with difficulty be distinguished; besides this the egg-membranes are unusually thick, rendering them difficult to study. The eggs of the Geophili lie under the bark of trees (*G. proximus*) or in sandy soil (*G. ferrugineus*) in small bunches, eighteen to thirty-five in number, and are protected and watched by the female. It is very difficult to keep the eggs alive in confinement, since they are attacked by fungi. It is also almost impossible to study the eggs in all stages of one and the same brood, so that one has to make almost daily excursions for material for study.

The eggs of *Geophilus ferrugineus* are ruby-red and almost perfectly transparent, they are probably those figured by Metschnikoff in his researches. While in the oviduct the egg is enveloped in a transparent coat, which appears to consist of the united chorion and yolk membrane, for these structures can be distinguished in young ovarian eggs. At this stage the egg is filled with yolk, hiding the germinal vesicles and yolk nucleus; but on one occasion a nucleated mass of protoplasm—the nucleus being spindle-shaped, and exhibiting division of its chromatin into two groups of rods—was found in the center, probably derived from the germinal vesicle. The nucleus and protoplasm divide into a

considerable number of portions; the central cleavage-masses are round or polygonal, the peripheral ones stellate. Yolk cleavage now takes place, the yolk breaking up into pyramidal masses, as in the Decapoda, these masses carrying portions of protoplasm upon their apices; the segmentation is not dichotomous; the number of pyramids was always the same, and the only difference between the young and the perfect pyramid consists in an indefiniteness of outline in the apex of the former. The simultaneous origin of the masses is not an impossible circumstance, and is explained by the action of the central protoplasm in drawing into itself the superincumbent yelk. The protoplasm-masses of the yelk now sink into the pyramids which form the primary endoderm, and the central protoplasm-masses come to the surface of the ovum and form the primary ectoderm. In the Chilognatha, judging from Polydesmus, the method of formation of the blastoderm more resembles that of the Crustacean and Arachnida; the yelk cleavage appears to have been correctly described by Metschnikoff. The blastoderm of Geophilus consists at first of large, pale, very thin cells, dividing very rapidly so as to form, in the course of twenty-four hours, a number of very small cells, which are, however, smaller on one side of the ovum than on the other; on this side the primitive streak appears, beginning at its anterior end, which develops the first segments and appendages before the hinder portion is clearly defined. Before the appearance of the primitive streak the mesoderm is divided off from the small-celled ectoderm, and at the same time nuclei, invested by means of protoplasm, emerge from the yelk-pyramids and apply themselves to the mesoderm; these masses seem to be derived from the nucleus of the ovum, and to have hitherto remained at the center. The mesoderm, like the primitive streak, develops first in front. The conversion of the yolk-pyramids into endoderm, *i. e.*, into the epithelium of the mid-gut, only takes place when the embryo is fully formed; it commences during that stage which Professor Metschnikoff did not observe, and at the same time as the beginning of flexion of the embryo.

The two preceding paragraphs have been taken from the translation in the Journal of the Royal Microscopical Society of the author's abstract (published in the *Zool. Anzieger*, v. 582). The later stages are described in detail, with sections, both transverse and longitudinal, and views of the complete embryo at different stages; with some sketches of the later embryo of Lithobius. The structure of the nervous system is described and figured, including the brain of Scolopendra, in a comparative way. A translation of the entire memoir would be most desirable.

NEW CAVE ARACHNIDS.—The following cave Chernetidæ, Phalangidæ and Nemastomatidæ are interesting additions to our cave-fauna.

Obisium caricola, n. sp.—This is an aberrant species, but ap-

parently belongs to this genus. The cephalothorax is much longer than broad, widest just before the middle, narrowing in front and behind, and deeply cleft between the cheliceræ, an unusual feature in the genus. There are no eyes. The cheliceræ are rather smaller than usual and separate at base; the head is shorter and the fingers longer than usual. The pedipalps are as long as the body without the cheliceræ, and are rather thick. The abdomen is narrow and rather long, with the segments well marked. Length of body including the cheliceræ $2^{mm.}$ One specimen, collected by us in the Newmarket cave, Va.

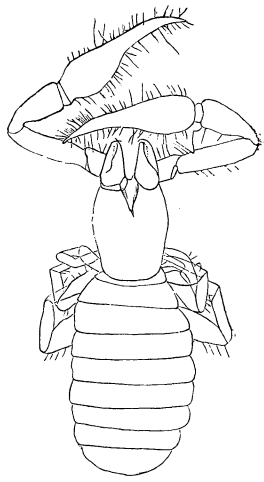

FIG. 1.—New Cave Obisium.

Chthonius cœcus, n. sp.—Body unusually short and broad, and the limbs short and thick. Eyeless. Cheliceræ very stout and thick. Pedipalps unusually short; the 2d joint short and twice as thick as in *C. packardii* Hagen; 3d joint short, thick, conical; manus very short and thick, really but little longer than the 3d joint; the movable finger nearly twice as long as the manus; it is stout and very straight, and serrulate on the inner edge. Legs short and thick. Length of body with the cheliceræ, $1.5^{mm.}$ Two specimens collected by us at Weyer's cave, Va.

Phlegmacera cavicolens, gen. et sp. nov.—*Gen. chars.*—In this genus of Phalangidæ the body is not spiny, is slightly compressed, much less flattened than usual, no broader than high, and the tergal as well as ventral surface is unusually convex and rounded. The cephalic plate bearing the eyes is about half as long as broad. The abdomen forms two-thirds the length of the body, with nine segments seen from above. Cheliceræ 3-jointed. Pedipalps 6-jointed, considerably longer than the body. It has no very close affinities to any of the European genera.

Sp. Chars.—Eyes large, prominent, scarcely situated on an eminence, black and well developed. A series of large, short but broad dorsal, transverse, blackish spots, and broad dusky lateral diffuse band. Cheliceræ with manus rather thick, the fingers very unequal; the movable fingers about two-thirds as long as the manus with a series of about 24 separate stiff, straight, setæ. Pedipalps densely setose, from $\frac{1}{4}$–$\frac{1}{3}$ longer than body, 5th joint longer than any of the other joints, and much swollen, oval; 6th no longer than 5th is wide. Fourth pair of legs with joint 5 divided at the end into nine minute joints, and the last tarsal joint (joint 6) subdivided into twelve joints. Length of body, $4^{mm.}$; thickness, $2.5^{mm.}$; width, $2^{mm.}$ Bat cave, Carter Co., Ky. Two specimens.

Nemastoma inops, n. sp.—Eyes wanting, with traces of a retina,

however. Chelicerae slender, rather long, inner edge of each finger with short, stiff setæ. Pedipalps of moderate length; 2d joint not much longer than the basal, being slightly longer than thick; 3d joint three times as long as the 2d; 3d and 4th of the same length, but the 4th a little thicker; 5th slightly longer and thicker than the 4th, with numerous stout setæ of nearly even length; 6th (terminal) two-thirds as long as the 5th and nearly as long in proportion as the terminal joint in *N. troglodytes* Pack.; it is very setose, and the tip is rounded.

Legs of the 2d pair 3^{mm} in length, hairy, last tarsal joint undivided; 4th pair 4^{mm} in length; the last tarsal joint with nine subjoints, and the claws smaller than in the 2d pair.

Length of the body, including the chelicerae, 1^{mm}. Bat cave, Carter Co., Ky. Two immature specimens, but the species is very characteristic, and this is the first occurrence of the genus east of the Great Basin.

VENTRAL REPUGNATORIAL ORGAN IN CENTIPEDES (GEOPHILUS).—The gland which emits a red liquid by certain disks in the median ventral line of *G. gabriellis*, has been studied by M. Passerini. The disks are epidermal structures about 0.2^{mm} in diameter in adults, and are placed in slight depressions of the integument, one on each foot-bearing segment; their center is occupied by about a hundred glistening bodies, which are the truncate ends of a corresponding set of conical mouth-pieces belonging to long ducts, each of which leads from a long pyriform gland. This gland is called unicellular by Passerini; its basal membrane, which is very thin, contains a number of smooth and striated fibers which ramify, anastomose, and form a reticulum, and are connected similarly with those of the neighboring glands, and extend over the ducts. The larger fibers, some of which measure 0.012^{mm} in diameter, start from common centers. The fibers very often exhibit a succession of slight inflations, and are evidently contractile and intended to compress the gland and expel the contents. The system of glands belonging to one segment is invested by a delicate membrane containing weak fibers and surrounded by adipose cells, and it is innervated by nerve-branches derived from the anterior nerve of the pair which is given off on each side by the ganglion of the segment; the tracheæ belong to a branch which comes direct from the main trunk.

The liquid contained in the gland coagulates promptly in the air, has an acid reaction and taste, and irritates the tongue, is soluble in water and alcohol, and becomes whitish under the action of caustic potash; the coagulum shows, under the microscope, an amorphous mass containing elongated crystals, which generally form rosettes about 0.14^{mm} in maximum diameter; analysis shows its composition to be analogous to that of silk. The only direct

evidence as to the function which the author was able to obtain, was that when the back is mechanically irritated the animal turns up its ventral surface and the disks become covered with the fluid, the object of which seems to be retaliation.—*Journ. R. Micr. Soc.*

ALBRECHT ON THE MORPHOLOGICAL VALUE OF THE MANDIBULAR ARTICULATION.—In this pamphlet M. P. Albrecht combats the general idea that the ear-bones are homologous with different parts of the first, or first and second visceral arches—parts which are distinct bones in the lower gnathostomes. His argument is as follows: In all non-mammalian gnathostomes the articulation of the mandible is between the articular element and the quadrate, and good evidence is needed to the contrary before we are bound to believe it otherwise in mammals. He maintains that the squamosal is a compound bone, formed of the true squamosal and the quadrate, and that the mandibular articulation is with the latter element, just as in other gnathostomes. This belief is founded upon the state of things existing on the left side of a new-born infant's skull in the writer's possession. In this skull the temporal of the right side is normal, but on the left side the zygomatic part is isolated from the true squamosal, which is united with the ali-sphenoid. Cases of a sutural division of the squamosal into an upper and lower portion are cited. If then, the zygomatic part of the squamosal is really the quadrate, and the mandibular articulation is the same in all gnathostomes, another explanation of the ear bones must be sought for. After enumerating and tabulating the various conflicting theories of Reichert, Günther, Gegenbaur, Huxley, W. K. Parker, Salensky, Kölliker, Wiedersheim and Fraser, upon this point, M. Albrecht declares that for him the bones of the ear are nothing more or less than dismemberments of the columella of the Amphibia. In the Urodela this columella is a cartilaginous rod connecting the tympanum with the fenestra ovale; in the Anura it consists of four cartilaginous portions which perform the same office, and are without question homologous with the single cartilage of the urodela; and in the Mammalia the four tiny ear bones are identical in position and function, and homologous in origin with, the four cartilages of the anuran columella. The columella in all these cases is without question homologous with the suspensorium of the mandible of gnathostomes that have no columella. The extra-mandibular part of Meckel's cartilage, in M. Albrecht's opinion, belongs to the malleus, and is homologous with the suspensory-articular ligament of selachians, with the symplectic-articular ligament of teleosts, and with the columello-articular ligament of the Batrachia and Sauropsida. Thus the arrangements are the same throughout, and the suspensorium of the mandible exists in fishes, Batrachia, Sauropsida and Mammals.

CHARACTERS OF HUMAN FEMORA.—Dr. E. Houzé, in the bulletin of the Anthropological Society of Brussels, gives the result of an examination into the third trochanter as it occasionally appears in a rudimental condition in man. He finds it to be more common in the higher than the lower races, as it is the point of insertion of the gluteus maximus muscle, which is in man intimately connected with the maintenance of the erect position. Thus it is very rare in the Anthropoid apes which are "platypyges;" it is rare in the negroes which he terms "micropyges," while it is very common in Europeans, who are "megapyges," or have the gluteus muscles best developed. It is rather more common in women than in men. The hypotrochanteric fossa is situated below the third trochanter. It is rare in men of the present period, but is constantly present in the femora of the men of the reindeer epoch in Belgium. It is found in men from Grevelle and Cro-Magnon in France.

ZOOLOGICAL NOTES.—*General.*—Professor E. H. Giglioli, in a written note appended to an inaugural discourse delivered by him at the opening of the new hall, for the Central Collection of Italian Vertebrates in the Museum at Florence, states that there are now in that collection more than 22,000 specimens, including examples of all the mammals (108 species), reptiles (41 species), and batrachia (21 species) found in Italy. The birds are represented by 22,000 examples and 415 species, and the fishes by more than 14,000 specimens and 554 species, yet these classes are not quite complete. The same naturalist writes of the recent discoveries by the Italian vessel *Washington* and the French *Travailleur* as the "discovery of an abyssal fauna in the Mediterranean," since Dr. Carpenter had confidently asserted the scarcity of life in the depths of that sea. Among the results obtained by the *Washington* were Willemœsia, Dorocidaris, Brisinga, Argyropelecus, Gonostoma, Hyalonema, *Chlorophthalmus agassizi*, a singular fish with large emerald eyes, Gadiculus, *Macrurus scelerorhynchus*, and many other interesting forms. Species which are known to inhabit depths eight times greater were found at depths of 400 to 500 meters.

Reptiles.—Dr. J. G. Fischer has recently described *Cnemidophorus affinis*, from Hayti; *Euprepes elegans* from Sierra Leone; *Sphenocalamus lineolatus*, a new genus and species of calamarid from Mazatlan, *Homolocranion lineatum* from Venezuela; *Leptophis frenatus* from Sierra Leone; *Bothriechis trianguligerus* from Guatemala; and *Helicops marginatus*.

Fishes.—The report of Messrs. Goode and Bean upon the fishes dredged during the summer of 1880 on the east coast of the United States enumerates fifty-two species, of which five were Pleuronectidæ, including two new species; six Macruridæ with three new species, eight Gadidæ, with one new species, three Cotti-

dæ, with one new species, four Lycodidæ, two of which are new; and three Sternoptychidæ, one of which is new. Most other families are represented by one species only, but include a new species of Alepocephalus, Bathysaurus, Halosaurus, and Mettastoma, as well as *Poromitra capito*, a Berycoid fish. Altogether, the list of United States fishes receives seventeen additions.——W. K. Parker has published a memoir with twelve colored plates upon the structure and development of the skull in the sturgeons *A. ruthenus* and *A. sturio*. His conclusions are that we have in the sturgeon a form practically intermediate between the Selachians and the Holostei. The first stages of the cranium are, to use his own words, "confusingly simple," and he believes that the vertebral segmentation of the skull is *a comparatively late and secondary specialization*. The same anatomist also, in the Philosophical Transactions of the Royal Society, gives an exhaustive account, with nine plates of sections, etc., of the development of the skull in *Lepidosteus osseus*. In comparing the skull with those of Polypterus and Amia, he says "Amia is a true Ganoid, and has several unmistakable diagnostics even in its skull, but it comes very near to the Physostomous Teleosteans.——In the Proceedings of the United States National Museum, Messrs. Jordan and Gilbert give a review of the American Carangidæ, with the synonymy and geographical distribution of each species. The genera recognized in the family are only six: Megalaspis, Decapterus, Trachurus, Caranx, Silene, and Chloroscombrus. The artificiality of generic distinctions generally is to some extent acknowledged in the following words: "This division is not wholly natural, inasmuch as the differences between the extremes among the species of Caranx are greater than those separating some of these species from related genera, while, on the other hand, the characters separating Trachurus and Silene from Caranx are technical only." Decapterus has five American species; Trachurus is credited with two, the *Caranx symmetricus* of Ayres being accorded specific rank with the name of *picturatus;* Caranx, of which Blepharis, Vomer and seven others are made sub-genera, has nineteen species, Silene two, and Chloroscombrus two, making thirty species in all. In the same Proceedings, Dr. T. H. Bean records the first occurrence of *Pseudotriacis microdon* Capello on the shores of the United States. It is a rare species, and was before known from Portugal only. The example referred to came ashore at the Amagansett life-saving station on Long Island. Professor Jordan describes a new Muræna from the Galapagos islands. He separates under the name of Sidera those species of Muræna, which have the posterior nostrils without tubes, and the teeth all sharp, and gives to the new species the name of *S. ehlevastes*. Messrs. Jordan and Gilbert also described a new species of Rhinobatus *(R. glaucostigma)* from Mazatlan. In the same Proceedings Miss Rosa Smith describes the life colors of *Cremnobates integripinnis*, and notices

the occurrence of *Gasterosteus williamsoni* in an artesian well at San Bernardino, California.——Messrs. Evermann and Meek (Proceedings Academy Natural Sciences, Philadelphia, 1883), define sixteen species of Gerres, and review the species found in American waters. *G. homonymus* is considered identical with *G. gula* C. and V. and *G. harengulus* with *Eucinostomus pseudogula* of Poey and *Diapterus gracilis* of Gill.

Birds.—Dr. R.W. Shufeldt publishes in the Journal of Physiology and Anatomy (XVIII, 86), observations on the osteology of *Podasocys montanus*, illustrated by a plate. In 1859 the skins of but two of these birds were in the Smithsonian collections. Upon its native plains, and in the open parks of the Rocky mountains, it has all the habits and action of a true plover, lacking only in the noisy traits of Vanellas and Ægialites.——The Bulletin of the Nuttall Ornithological Club for October, 1883, contains a notice by Dr. C. H. Merriam, of the yellow-green vireo, which has not before occurred north of Fort Brown, Texas. It was found dead in the Province of Quebec, Canada, and was probably a storm waif. Dr. Merriam also states that the harlequin duck, a common summer resident in Newfoundland, nests in hollow trees. His authority is James P. Honley, of the Newfoundland Geological Survey, who writes: "It is quite true the birds nest in hollow stumps of trees, usually on islets in the lakes or tarns of the interior. They usually frequent the larger lakes and rivers far from the seacoast, but are found scattered all over the country."——W. Brewster notices an apparently new gull from Northeastern America, which Kumlien regarded as *Larus glaucescens*, but which Brewster renames *Larus kumlieni*.——The nest and young of the pigmy owl at Fort Klamath, California, are described by C. F. Bendire.

Mammals.—Dr. J. B. Holder, of the American Museum of Natural History, New York, has added further to our knowledge of the right whale of the north temperate Atlantic (*Balæna cisartica* Cope) by the publication of figures and descriptions of the exterior characters and osteology of three or four examples, including both sexes. The head is always relatively shorter than in *B. mysticetus*, but a female from the New Jersey coast has a longer head than the males. Dr. Manigault, in a letter to Dr. Holder respecting an example taken at Charleston, South Carolina, states that a fishery for this whale is carried on to a limited extent off the coast of South Carolina and Georgia, and that it attains a length of sixty feet.

PHYSIOLOGY.[1]

DIGESTION WITHOUT A STOMACH.—In the *Archiv f. Anatomie u. Physiologie*, 1883, M. Ogata describes some remarkable experiments upon the digestive powers of animals in which the influence

[1] This department is edited by Professor HENRY SEWALL, of Ann Arbor, Michigan.